SSD Recent Status

July 2008 - Howard Matis

Recent understandings

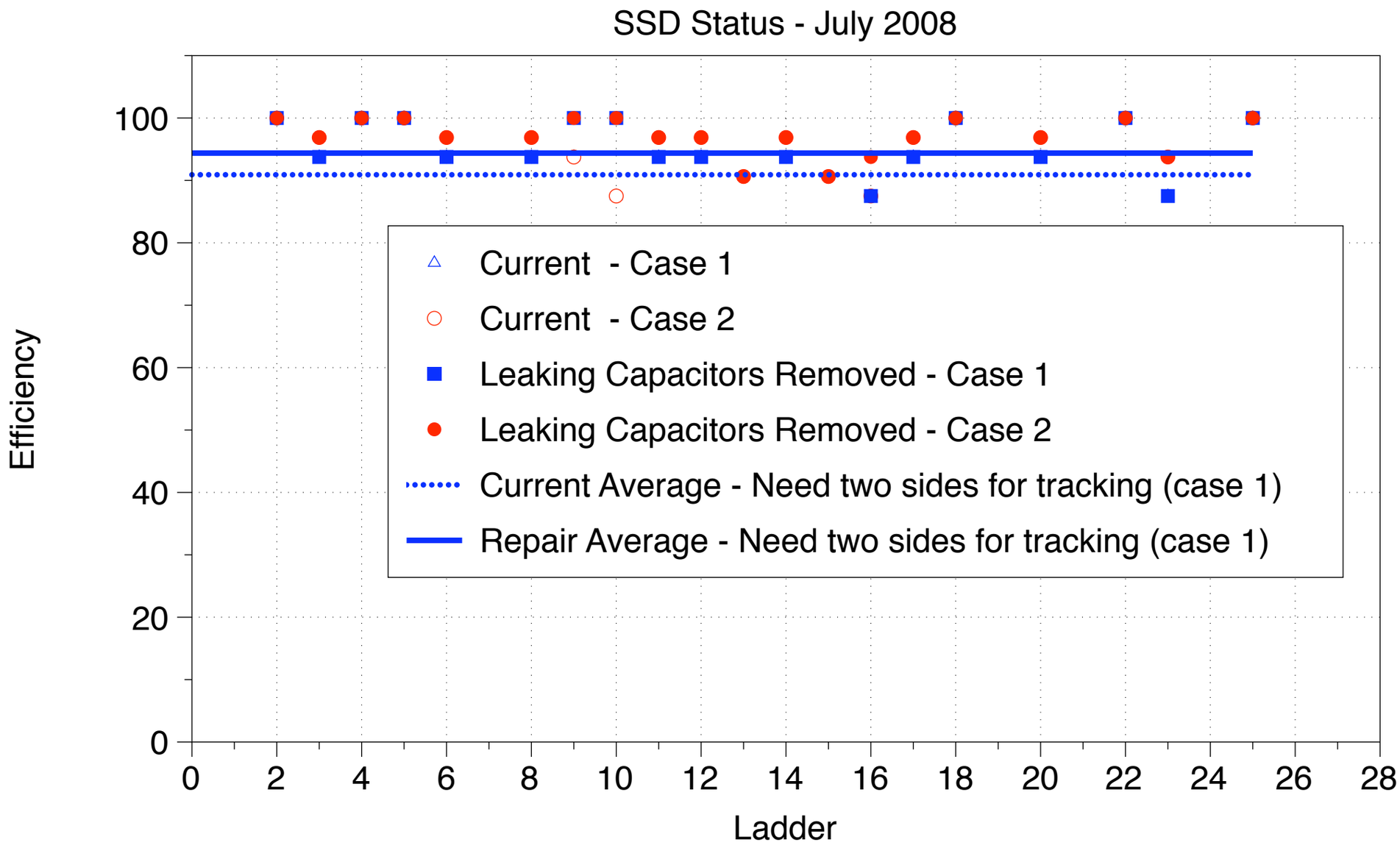
- Forced air should work
  - Mylar strong enough
  - Vacuum still preferred method
- Need new connectors
  - Old ones obsolete
  - Need enough space to fit fingers

Progress on removing leaking capacitors

- Capacitors are glued
- Need to heat them to remove
  - Can’t damage the rest of the board
  - Can’t spill epoxy when removed
- Fixture being built

Amount of good silicon

- Stephane did a new analysis
- Looked at current silicon with repairs that can easily be done
- Selected 20 best ladders
- Then extrapolated performance assuming leaking capacitors replaced
- Two levels of performance
  - Tracking that needs the p and n hybrid
  - Tracking the only uses one



Good efficiency whether repaired or not

Progress on Cable size

- Measured existing cables
  - Smaller cables reduce cable size
- Decided to use fiber for slow controls
  - Use existing JTAG with optical converter
    - Can use most existing slow control software
    - Need more resources
    - Move RDO box to platform
- Can move HV to east side if necessary
  - Requires rerouting existing cables
- DAQ, Slow Control, Sense, LV must go to both sides of the cone

Cable size on the cone

System	Cable Type	#	Diameter mm	Area Rectangular mm^2	Total Area Rectangular cm^2	Optimized West Area Rectangular cm^2	Optimized East Area Rectangular cm^2
DAQ	Optical Fiber	20	3.0	0.1	1.8	1.8	1.8
Slow Control	Shielded twisted pair (28x)	20	3.0	0.1	1.8	1.8	1.8
Ladder	Sense (4x AWG 24)	20	6.4	0.4	20.0	20.0	20.0
	LV (6x AWG 18)	20	8.1	0.7	13.2	13.2	13.2
	HV Bias (2x AWG 24)	10	4.3	0.2	1.9		3.7
air cooling	Air cooling to end of cone	20	12.7	1.6	32.3	32.3	32.3
Contingency		0.15			10.6	10.4	10.9
				Total	81.6	79.4	83.7

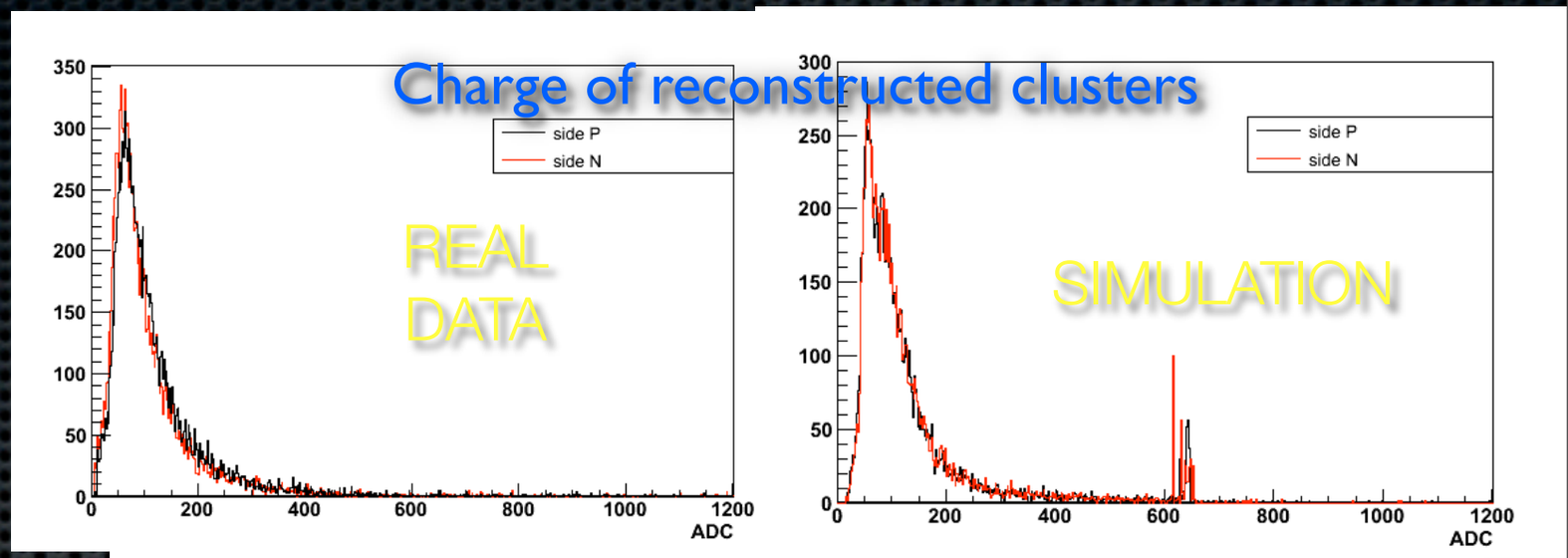
SSD software status

From Jonathan Bouchet

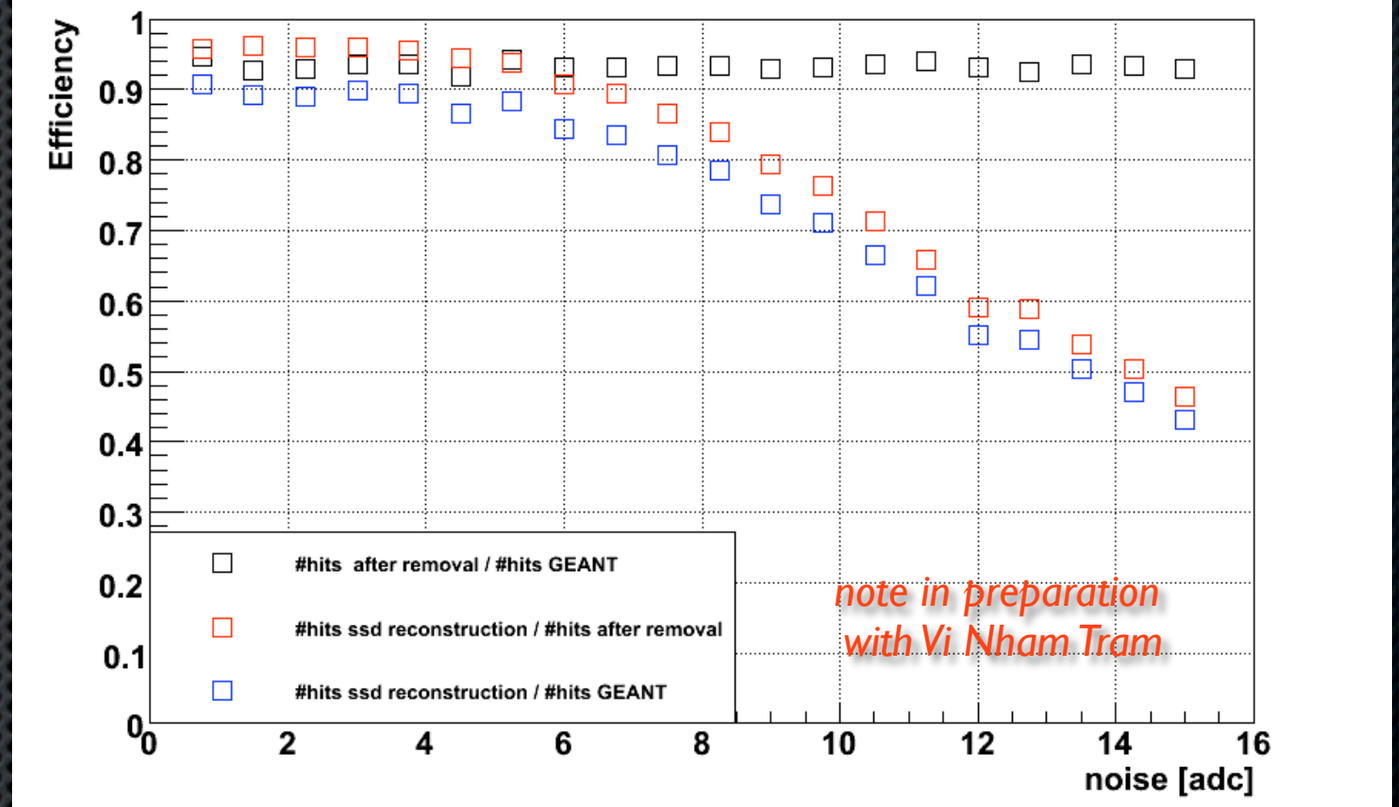
- Database speed improvements
- Simulation software
- Embedding
- Physics analysis

Slow Simulator :

Reconstructed simulated data in agreement with the real data

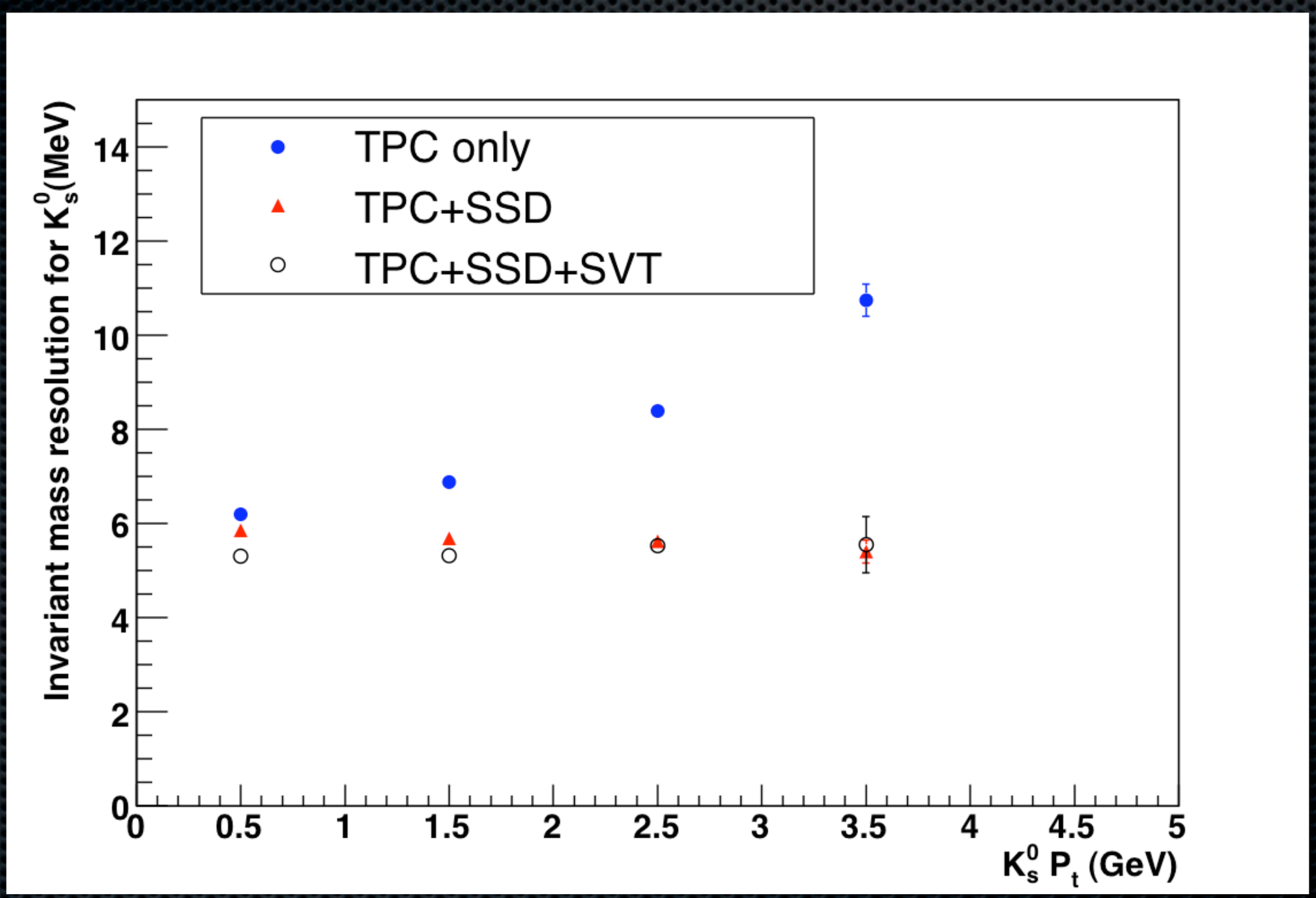


Can use real noise to study efficiencies



- Analysis has been modified to implement embedding
  First time with SSD
  Going to test production

Physics reconstruction



Software Future

- Table to perform the reconstruction in a given list of wafers
  - (actually we can decide only at the ladder level)
  - has been implemented but not used.
- Lorentz effect to improve for next run
  - Use knowledge of the “real” temperature within the detector
- Reconstruction of hits using only the cluster of one side

Schedule for Upgrade

- When will second run in 2009 start?
- Looks difficult to roll out STAR next summer
- No funding to do production this year
- Getting difficult to prepare three ladder prototype inside STAR
- Fallback is one ladder in a convenient and PROTECTED place

Manpower

- Micheal should be back at BNL soon
- Waiting for TPX to finish so can obtain engineering effort
- When will FY09 funding be available?
- Delay making harder to retain young talent
- Need infusion of youth

Summary

- SSD group meets every two weeks
- Good communication between France and the US
- Need an infusion of cash